Project Fact Sheet

Waste Heat Driven Adsorption Chilling in the Food Industry

GOALS

- Demonstrate waste heat driven adsorption refrigeration technology at a potato frying plant.

PROJECT DESCRIPTION

Refrigeration is the single most intensive electrical energy operation in many food processing plants. Waste heat in food processing plants is available at relatively low temperatures typically around 200F.

The proposed project uses waste heat for refrigeration to reduce electricity consumption. Adsorption technology is better suited for conversion of low temperature waste heat to chilling compared to absorption technology.

This project involves the installation of a 300-ton adsorption chiller in a potato chip processing plant. The plant fries about 20,000 lb/hr of potato chips producing about 15,000 lb/hr of water vapor at about 220 F. The water vapor that is presently discharged to the atmosphere will be recovered and used as the heat source for the adsorption chiller. The chiller will provide cold water for air conditioning of the plant.

Waste Heat Driven Adsorption Chiller

SITE BENEFIT

The project is estimated to save about 1.5 million kWh per year and 300 kW of peak demand resulting in about $123,000 of annual saving.

INDUSTRY BENEFIT

Most of the large food processing plants are in the Central Valley and operate mostly during peak summer months. Reducing the electricity for refrigeration and chilling by the use of waste heat will reduce the summer peak loads providing benefits to the overall electricity system.

The adoption of adsorption chiller technologies by 50 food processing plants across the food industry could reduce 15 MW of peak summer load.

FUNDING AMOUNT

Project Cost: $917,315
Public Interest Energy Research Program Contribution $487,672 (53%)

FOR MORE INFORMATION

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